

CLAIMS

What is claimed is:

1. A lead frame comprising:

a die pad having a top surface for mounting at least one semiconductor chip thereon, and a bottom surface;

at least one grounding portion protruded from the die pad and having a grounding surface, wherein the thickness of the grounding portion is smaller than that of the die pad, and a ground pad is formed on the grounding surface of the grounding portion, allowing at least one grounding wire to be bonded to the ground pad and the semiconductor chip for transmitting ground signals; and

a plurality of leads surrounding the die pad, for allowing a set of bonding wires to be bonded to the leads and the semiconductor chip so as to electrically connect the semiconductor chip to the leads.

2. The lead frame of claim 1, wherein the grounding surface is lower in elevation than the top surface of the die pad.

3. The lead frame of claim 1, wherein the grounding surface is flush with the top surface of the die pad.

4. The lead frame of claim 1, wherein the thickness of the grounding portion is half of the thickness of the die pad.

5. The lead frame of claim 1, wherein the lead frame is made of copper or copper alloy.

6. The lead frame of claim 1, wherein the leads are higher in elevation than the die pad.

7. The lead frame of claim 1, further comprising a plurality of tie bars connected to the die pad.

8. The lead frame of claim 1, wherein the lead frame is used in a quad flat package (QFP) or quad flat non-leaded (QFN) package.

9. A semiconductor package, comprising:

at least one semiconductor chip;

a lead frame for carrying the semiconductor chip, comprising:

a die pad having a top surface and a bottom surface, with the semiconductor chip mounted on the top surface;

at least one grounding portion protruded from the die pad, and having a grounding surface and a bottom surface opposed to the grounding surface, wherein the thickness of the grounding portion is smaller than that of the die pad, and a ground pad is formed on the grounding surface of the grounding portion, allowing at least one grounding wire to be bonded to the ground pad and the semiconductor chip for transmitting ground signals; and

a plurality of leads bonded with a set of bonding wires that are connected to the semiconductor chip so as to electrically connect the semiconductor chip to the leads via the set of bonding wires; and

an encapsulation body for encapsulating the semiconductor chip, the die pad, the grounding portion and part of the leads.

10. The semiconductor package of claim 9, wherein the grounding surface is lower in elevation than the top surface of the die pad.

11. The semiconductor package of claim 9, wherein the grounding surface is flush with the top surface of the die pad.

12. The semiconductor package of claim 9, wherein the thickness of the grounding portion is half of the thickness of the die pad.

13. The semiconductor package of claim 9, wherein a height difference is formed between the die pad and the leads.

14. The semiconductor package of claim 13, wherein the leads are higher in elevation than the die pad.

15. The semiconductor package of claim 9, wherein the lead frame further comprises a plurality of tie bars connected to the die pad.
16. The semiconductor package of claim 9, wherein the bottom surface of the die pad is exposed from the encapsulation body.
17. The semiconductor package of claim 9, wherein the bottom surface of the die pad and the bottom surface of the grounding portion are exposed from the encapsulation body.
18. The semiconductor package of claim 9, wherein the semiconductor chip is attached to the die pad via an adhesive.
19. The semiconductor package of claim 18, wherein the adhesive is a silver paste or polyimide tape.
20. The semiconductor package of claim 9, wherein the semiconductor package is a quad flat package (QFP) or quad flat non-leaded (QFN) package.